

**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Gra Ex LLC**

PO Box 32  
Kingman, KS 67068

ATTN: Jeff Burk

**Violet #1**

**31-24s-13w Stafford,KS**

Start Date: 2011.12.01 @ 04:40:20

End Date: 2011.12.01 @ 13:52:35

Job Ticket #: 42313                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2011.12.14 @ 14:17:03

Gra Ex LLC

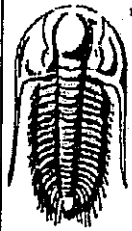
31-24s-13w Stafford,KS

Violet #1

DST # 1

Lansing D,F

2011.12.01



**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Gra Ex LLC

31-24s-13w Stafford,KS

PO Box 32  
Kingman, KS 67068

Violet #1

Job Ticket: 42313 DST#: 1

ATTN: Jeff Burk

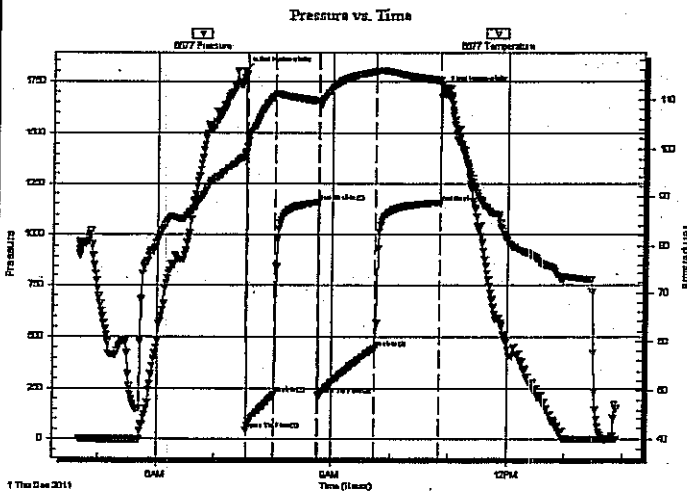
Test Start: 2011.12.01 @ 04:40:20

**GENERAL INFORMATION:**

Formation: **Lansing D,F**  
 Deviated: **No Whipstock** ft (KB)  
 Test Type: **Conventional Bottom Hole (Initial)**  
 Time Tool Opened: **07:32:35**  
 Tester: **Mike Slemp**  
 Time Test Ended: **13:52:35**  
 Unit No: **53**  
 Interval: **3687.00 ft (KB) To 3744.00 ft (KB) (TVD)**  
 Reference Elevations: **1953.00 ft (KB)**  
 Total Depth: **3744.00 ft (KB) (TVD)**  
**1943.00 ft (CF)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good**  
 KB to GR/CF: **10.00 ft**

**Serial #: 8677** Inside  
 Press@RunDepth: **445.92 psig @ 3689.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2011.12.01** End Date: **2011.12.01** Last Calib.: **2011.12.01**  
 Start Time: **04:40:21** End Time: **13:52:35** Time On Btm: **2011.12.01 @ 07:30:05**  
 Time Off Btm: **2011.12.01 @ 10:52:35**

**TEST COMMENT:** IF- BOB in 5 min  
 IS- No blow back  
 FF- BOB in 7 min  
 FS- No blow back



**PRESSURE SUMMARY**

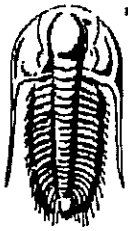
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1799.89	98.96	Initial Hydro-static
3	44.52	100.47	Open To Flow (1)
32	220.74	111.02	Shut-In(1)
75	1158.37	109.72	End Shut-In(1)
77	214.85	109.17	Open To Flow (2)
134	445.92	115.68	Shut-In(2)
200	1154.32	113.91	End Shut-In(2)
203	1705.95	111.53	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
248.00	MCW 50% mu 50% w ater skim of oil	3.48
682.00	MCW 95% w ater 5% mud	9.57

**Gas Rates**

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

**31-24s-13w Stafford,KS**  
**Violet #1**  
Job Ticket: 42313      DST#: 1  
Test Start: 2011.12.01 @ 04:40:20

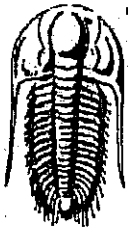
### Tool Information

Drill Pipe:	Length: 3668.00 ft	Diameter: 3.80 inches	Volume: 51.45 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 51.45 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3687.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	57.00 ft			
Tool Length:	83.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3666.00	
Hydraulic tool	5.00			3671.00	
Jars	5.00			3676.00	
Safety Joint	2.00			3678.00	
Packer	5.00			3683.00	26.00      Bottom Of Top Packer
Packer	4.00			3687.00	
Stubb	1.00			3688.00	
Perforations	1.00			3689.00	
Recorder	0.00	8676	Inside	3689.00	
Recorder	0.00	8522	Inside	3689.00	
Perforations	19.00			3708.00	
Change Over Sub	1.00			3709.00	
Drill Pipe	31.00			3740.00	
Change Over Sub	1.00			3741.00	
Bullnose	3.00			3744.00	57.00      Bottom Packers & Anchor

**Total Tool Length: 83.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

**31-24s-13w Stafford, KS**  
**Violet #1**  
Job Ticket: 42313      **DST#: 1**  
Test Start: 2011.12.01 @ 04:40:20

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	68000 ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.74 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2800.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
248.00	MCW 50%mu50%w ater skim of oil	3.479
682.00	MCW95%w ater5%mud	9.567

Total Length: 930.00 ft      Total Volume: 13.046 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

Serial #: 8677

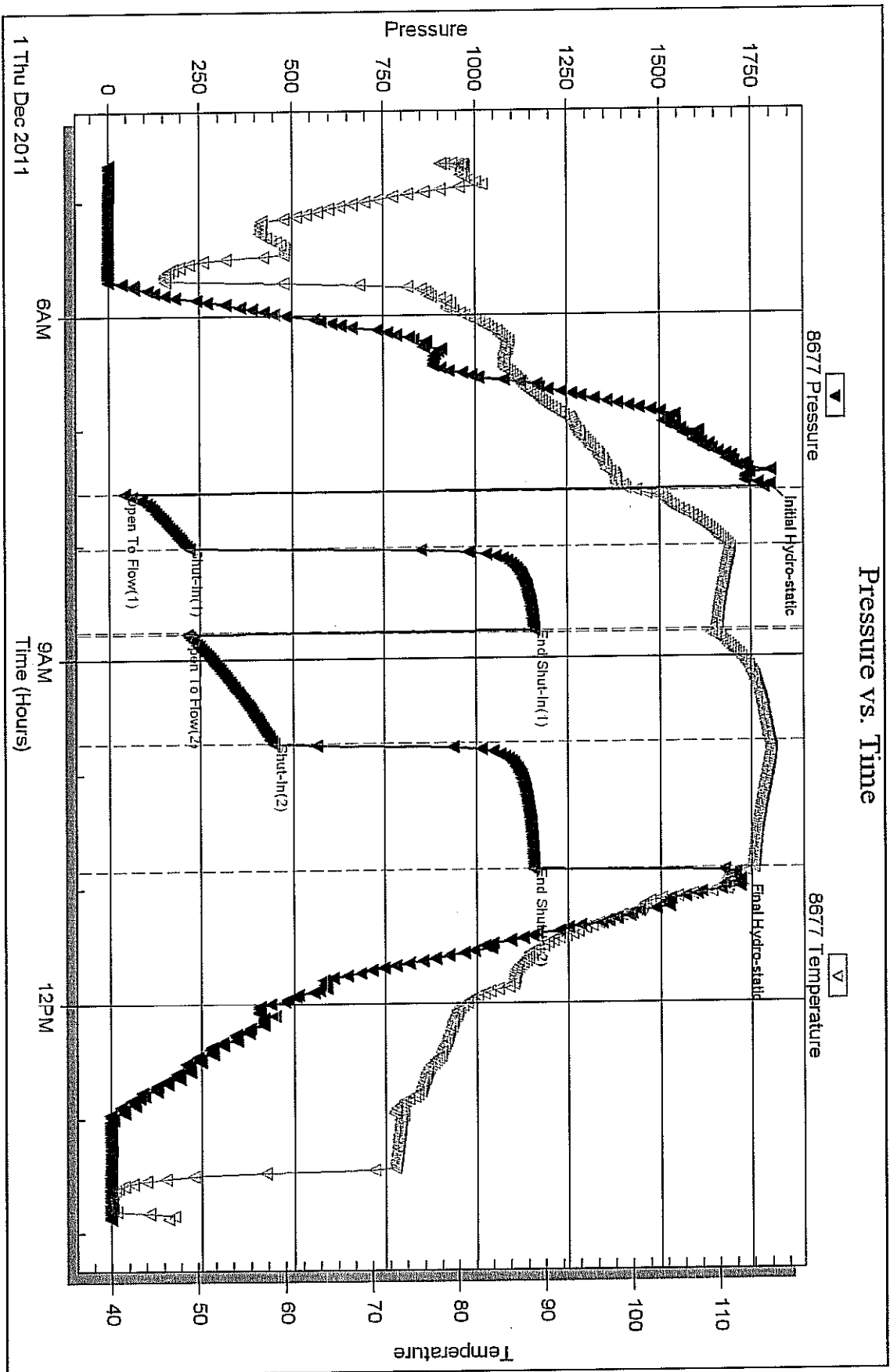
Inside

Gra Ex LLC

Violet #1

DST Test Number: 1

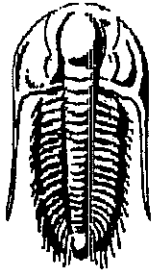
### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 42313

Printed: 2011.12.14 @ 14:17:04



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Gra Ex LLC**

PO Box 32  
Kingman, KS 67068

ATTN: Jeff Burk

**Violet #1**

**31-24s-13w Stafford,KS**

Start Date: 2011.12.02 @ 01:40:26

End Date: 2011.12.02 @ 12:19:41

Job Ticket #: 42314                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2011.12.14 @ 14:17:21

Gra Ex LLC

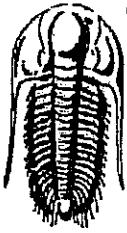
31-24s-13w Stafford,KS

Violet #1

DST # 2

Lansing I, J

2011.12.02



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

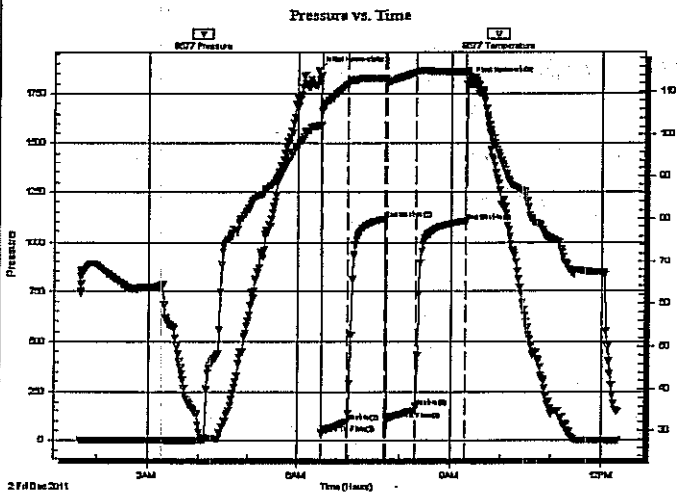
**31-24s-13w Stafford, KS**  
**Violet #1**  
Job Ticket: 42314      DST#: 2  
Test Start: 2011.12.02 @ 01:40:26

## GENERAL INFORMATION:

Formation: **Lansing I, J**  
Deviated: **No Whipstock**      ft (KB)  
Time Tool Opened: 06:27:41  
Time Test Ended: 12:19:41  
Test Type: **Conventional Bottom Hole (Initial)**  
Tester: **Mke Slemp**  
Unit No: **53**  
Interval: **3787.00 ft (KB) To 3834.00 ft (KB) (TVD)**  
Reference Elevations: **1953.00 ft (KB)**  
Total Depth: **3834.00 ft (KB) (TVD)**      **1943.00 ft (CF)**  
Hole Diameter: **7.88 inches**      Hole Condition: **Good**      KB to GR/CF: **10.00 ft**

**Serial #: 8677**      **Inside**  
Press@RunDepth: **178.06 psig @ 3789.00 ft (KB)**      Capacity: **8000.00 psig**  
Start Date: **2011.12.02**      End Date: **2011.12.02**      Last Calib.: **2011.12.02**  
Start Time: **01:40:27**      End Time: **12:19:41**      Time On Btm: **2011.12.02 @ 06:23:11**  
Time Off Btm: **2011.12.02 @ 09:20:11**

TEST COMMENT: IF- BOB in 1 min  
IS- No blow back  
FF- BOB ASAO GTS in 15 TSTM  
FS- No blow back



## PRESSURE SUMMARY

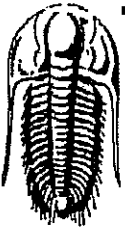
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1866.24	102.07	Initial Hydro-static
5	37.76	105.50	Open To Flow (1)
35	95.07	111.80	Shut-In(1)
80	1114.69	113.19	End Shut-In(1)
81	105.87	112.07	Open To Flow (2)
116	178.06	114.60	Shut-In(2)
174	1103.42	114.70	End Shut-In(2)
177	1813.96	114.28	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	OGCM10%gas20%oil10%water60% mud	0.87
376.00	GOC60%oil30gas5%water5% mud	5.27
62.00	100%water	0.87

## Gas Rates

Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
  
ATTN: Jeff Burk

**31-24s-13w Stafford,KS**  
  
**Violet #1**  
Job Ticket: 42314      DST#: 2  
Test Start: 2011.12.02 @ 01:40:26

**Tool Information**

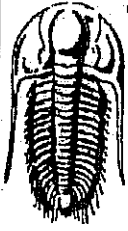
Drill Pipe:	Length: 3790.00 ft	Diameter: 3.80 inches	Volume: 53.16 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 80000.00 lb
		Total Volume: 53.16 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3787.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	47.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3766.00	
Hydraulic tool	5.00			3771.00	
Jars	5.00			3776.00	
Safety Joint	2.00			3778.00	
Packer	5.00			3783.00	26.00      Bottom Of Top Packer
Packer	4.00			3787.00	
Stubb	1.00			3788.00	
Perforations	1.00			3789.00	
Recorder	0.00	8677	Inside	3789.00	
Recorder	0.00	8522	Inside	3789.00	
Perforations	9.00			3798.00	
Change Over Sub	1.00			3799.00	
Drill Pipe	31.00			3830.00	
Change Over Sub	1.00			3831.00	
Bullnose	3.00			3834.00	47.00      Bottom Packers & Anchor

**Total Tool Length: 73.00**





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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

**31-24s-13w Stafford, KS**  
**Violet #1**  
Job Ticket: 42314      **DST#: 2**  
Test Start: 2011.12.02 @ 01:40:26

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	58000 ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.76 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5500.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
62.00	OGCM10%gas20%oil10%water60%mud	0.870
376.00	GOC60%oil30gas5%water5%mud	5.274
62.00	100%water	0.870

Total Length: 500.00 ft      Total Volume: 7.014 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

Serial #: 8677

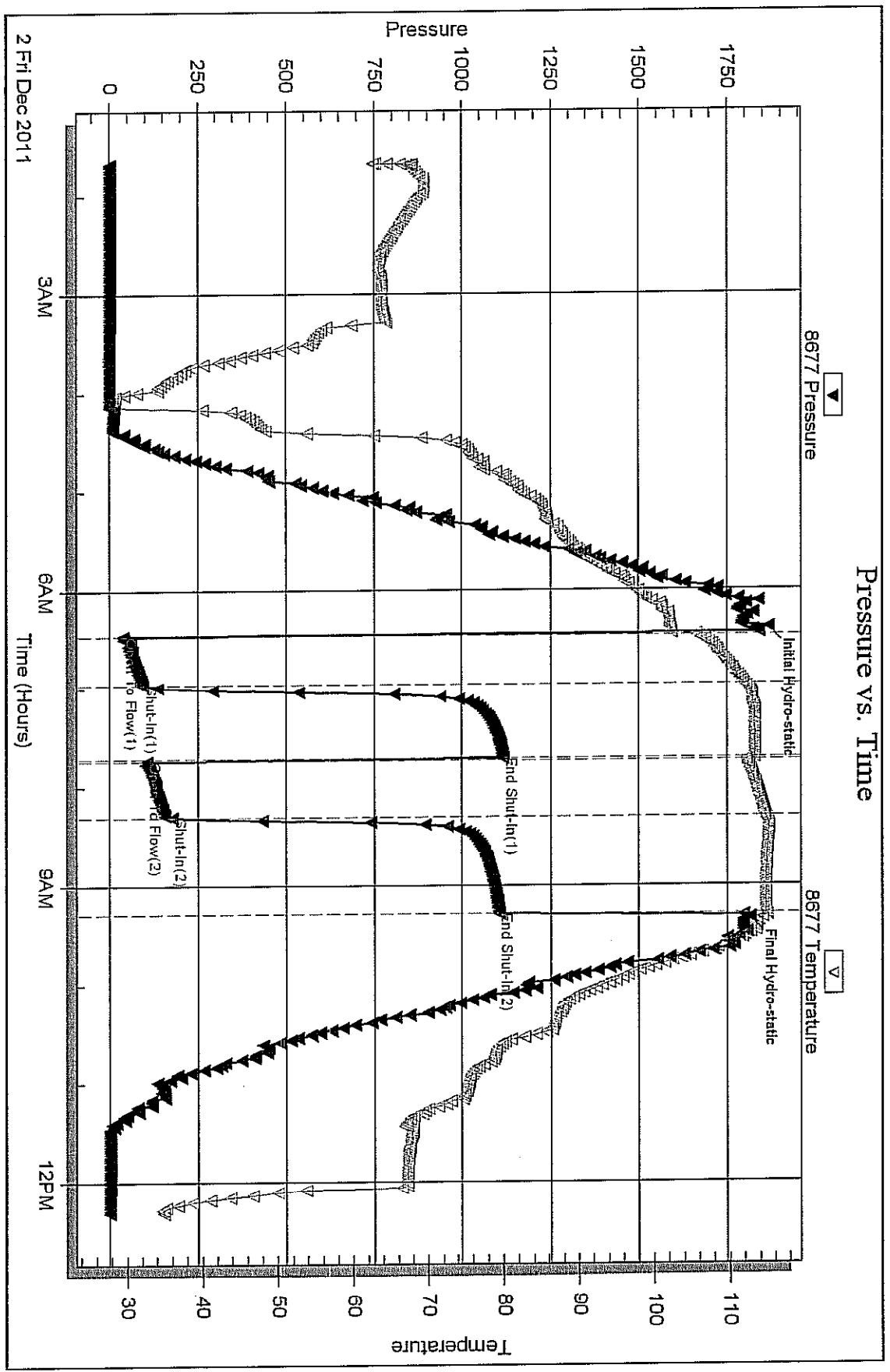
Inside

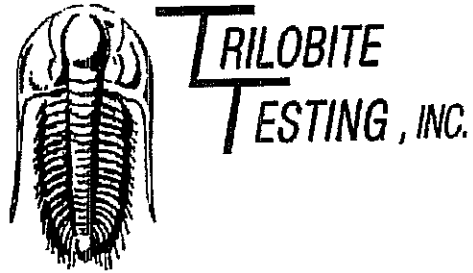
Gra Ex LLC

Violet #1

DST Test Number: 2

### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **Gra Ex LLC**  
PO Box 32  
Kingman, KS 67068

ATTN: Jeff Burk

### **Violet #1**

#### **31-24s-13w Stafford,KS**

Start Date: 2011.12.02 @ 22:00:34

End Date: 2011.12.03 @ 08:00:34

Job Ticket #: 42315                      DST #: 3

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2011.12.14 @ 14:18:50

Gra Ex LLC

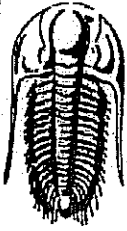
31-24s-13w Stafford,KS

Violet #1

DST # 3

Lansing L

2011.12.02



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

**31-24s-13w Stafford, KS**  
**Violet #1**  
Job Ticket: 42315      DST#: 3  
Test Start: 2011.12.02 @ 22:00:34

## GENERAL INFORMATION:

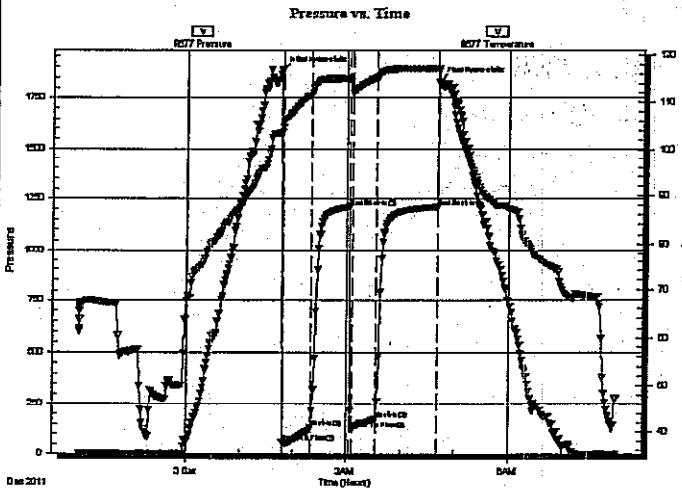
Formation: **Lansing L**  
Deviated: **No Whipstock**      ft (KB)  
Time Tool Opened: 01:47:49  
Time Test Ended: 08:00:34  
Interval: **3869.00 ft (KB) To 3903.00 ft (KB) (TVD)**  
Total Depth: **3903.00 ft (KB) (TVD)**  
Hole Diameter: **7.88 inches** Hole Condition: **Good**

Test Type: **Conventional Bottom Hole (Initial)**  
Tester: **Mike Slemp**  
Unit No: **53**  
Reference Elevations: **1953.00 ft (KB)**  
**1943.00 ft (CF)**  
KB to GR/CF: **10.00 ft**

**Serial #: 8677**      Inside  
Press@RunDepth: **173.63 psig @ 3871.00 ft (KB)**  
Start Date: **2011.12.02**      End Date:  
Start Time: **22:00:35**      End Time:

Capacity: **8000.00 psig**  
2011.12.03      Last Calib.: **2011.12.03**  
08:00:34      Time On Btm: **2011.12.03 @ 01:46:19**  
Time Off Btm: **2011.12.03 @ 04:41:34**

TEST COMMENT: IF- BOB in 1 min  
IS- 4 inch blow back  
FF- BOB ASAO GTS ASAO TSTM  
FS- BOB blow back



## PRESSURE SUMMARY

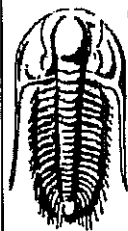
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1883.96	103.74	Initial Hydro-static
2	57.91	104.79	Open To Flow (1)
33	129.15	111.52	Shut-In(1)
77	1211.19	115.06	End Shut-In(1)
80	120.19	112.06	Open To Flow (2)
107	173.63	115.22	Shut-In(2)
174	1211.15	117.16	End Shut-In(2)
176	1831.37	117.17	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
315.00	MCO 95%oil5%mud	4.42
215.00	MVCOG40%gas50%oil5%water5%mud	3.02

## Gas Rates

	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Gra Ex LLC  
 PO Box 32  
 Kingman, KS 67068  
 ATTN: Jeff Burk

**31-24s-13w Stafford,KS**  
**Violet #1**  
 Job Ticket: 42315      DST#: 3  
 Test Start: 2011.12.02 @ 22:00:34

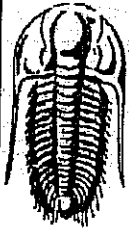
**Tool Information**

Drill Pipe:	Length: 3852.00 ft	Diameter: 3.80 inches	Volume: 54.03 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 54.03 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3869.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	34.00 ft			
Tool Length:	60.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3848.00	
Hydraulic tool	5.00			3853.00	
Jars	5.00			3858.00	
Safety Joint	2.00			3860.00	
Packer	5.00			3865.00	26.00      Bottom Of Top Packer
Packer	4.00			3869.00	
Stubb	1.00			3870.00	
Perforations	1.00			3871.00	
Recorder	0.00	8677	Inside	3871.00	
Recorder	0.00	8522	Inside	3871.00	
Perforations	29.00			3900.00	
Bullnose	3.00			3903.00	34.00      Bottom Packers & Anchor

**Total Tool Length: 60.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67088  
ATTN: Jeff Burk

**31-24s-13w Stafford,KS**  
**Violet #1**  
Job Ticket: 42315      **DST#:3**  
Test Start: 2011.12.02 @ 22:00:34

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 49.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.86 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5500.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
315.00	MCO 95%oil5%mud	4.419
215.00	MMCGO40%gas50%oil5%water5%mud	3.016

Total Length: 530.00 ft      Total Volume: 7.435 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

Serial #: 8677

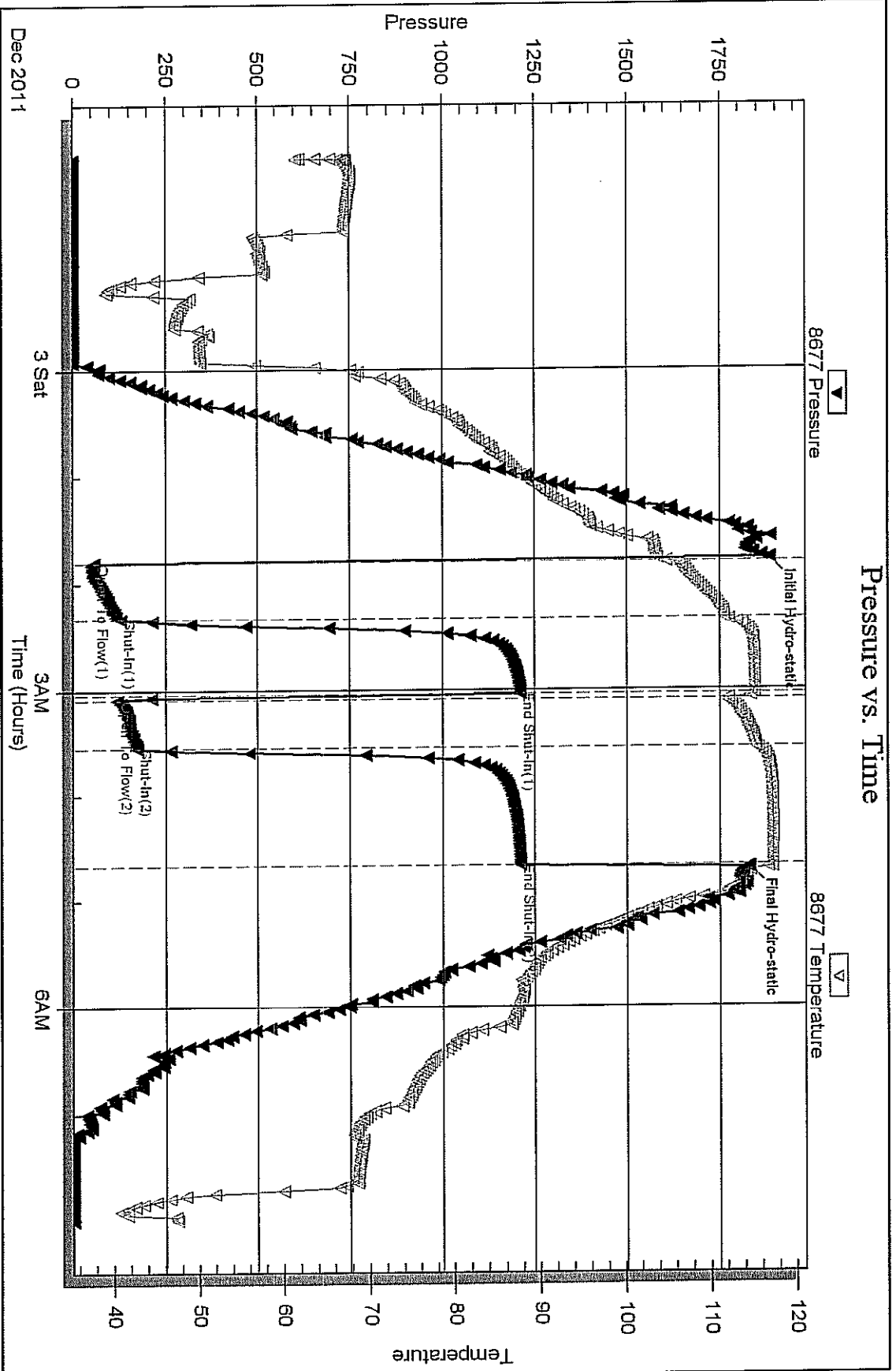
Inside

Gra Ex LLC

Voidel #1

DST Test Number: 3

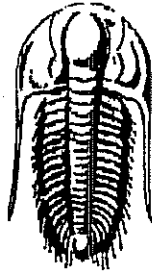
### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 42315

Printed: 2011.12.14 @ 14:18:52



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Gra Ex LLC**

PO Box 32  
Kingman, KS 67068

ATTN: Jeff Burk

### **Violet #1**

#### **31-24s-13w Stafford,KS**

Start Date: 2011.12.03 @ 21:13:31

End Date: 2011.12.04 @ 05:58:16

Job Ticket #: 44047                      DST #: 4

Trilobite Testing, Inc

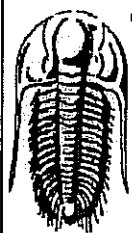
PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2011.12.14 @ 14:19:06

Gra Ex LLC    31-24s-13w Stafford,KS    Violet #1    DST # 4    Mississippi    2011.12.03





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Gra Ex LLC  
 PO Box 32  
 Kingman, KS 67068  
 ATTN: Jeff Burk

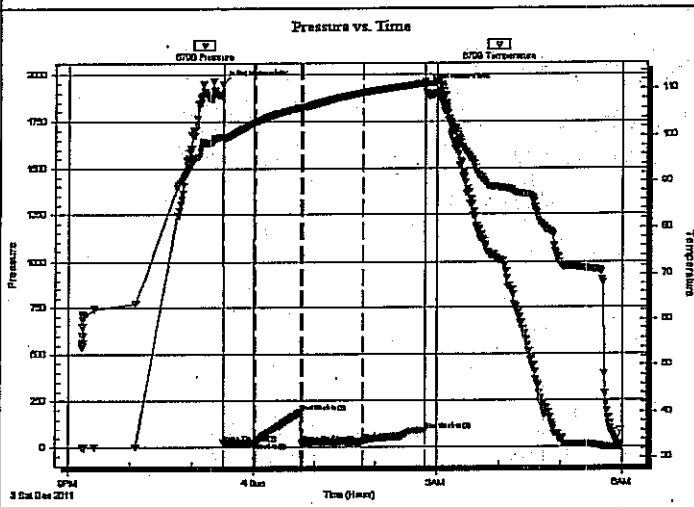
**31-24s-13w Stafford,KS**  
**Violet #1**  
 Job Ticket: 44047      DST#: 4  
 Test Start: 2011.12.03 @ 21:13:31

## GENERAL INFORMATION:

Formation: **Mississippi**  
 Deviated: No Whipstock      ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 23:30:31  
 Tester: Leal Cason  
 Time Test Ended: 05:58:16  
 Unit No: 45  
 Interval: **3969.00 ft (KB) To 4020.00 ft (KB) (TVD)**  
 Reference Elevations: 1953.00 ft (KB)  
 Total Depth: **4020.00 ft (KB) (TVD)**  
 1943.00 ft (CF)  
 Hole Diameter: **7.88 inches** Hole Condition: Good  
 KB to GR/CF: 10.00 ft

**Serial #: 6798**      Inside  
 Press@RunDepth: 31.99 psig @ 3970.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2011.12.03      End Date: 2011.12.04      Last Calib.: 2011.12.04  
 Start Time: 21:13:32      End Time: 05:58:16      Time On Btmr: 2011.12.03 @ 23:29:31  
 Time Off Btmr: 2011.12.04 @ 02:48:31

**TEST COMMENT:** IF: Fair Blow, 7 inches  
 IS: No Blow back  
 FF: Weak Blow, BOB in 54 minutes  
 FS: No Blow back

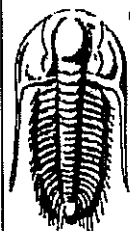


Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	1948.30	99.80	Initial Hydro-static
.1	25.23	99.40	Open To Flow (1)
33	28.81	102.90	Shut-In(1)
77	192.07	106.06	End Shut-In(1)
79	23.21	106.03	Open To Flow (2)
138	31.99	109.14	Shut-In(2)
199	95.19	111.16	End Shut-In(2)
199	1929.81	111.48	Final Hydro-static

Length (ft)	Description	Volume (bbl)
30.00	SGCM 2%G 98%M	0.42

Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

TOOL DIAGRAM

Gra Ex LLC

31-24s-13w Stafford, KS

PO Box 32  
Kingman, KS 67068

Violet #1

Job Ticket: 44047

DST#: 4

ATTN: Jeff Burk

Test Start: 2011.12.03 @ 21:13:31

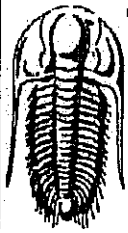
### Tool Information

Drill Pipe:	Length: 3972.00 ft	Diameter: 3.80 inches	Volume: 55.72 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 55.72 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3969.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	78.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Bottom Packer is a shale packer

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3947.00	
Hydraulic tool	5.00			3952.00	
Jars	5.00			3957.00	
Safety Joint	2.00			3959.00	
Packer	5.00			3964.00	27.00 Bottom Of Top Packer
Packer	5.00			3969.00	
Stubb	1.00			3970.00	
Recorder	0.00	6798	Inside	3970.00	
Recorder	0.00	8367	Outside	3970.00	
Perforations	10.00			3980.00	
Change Over Sub	1.00			3981.00	
Drill Pipe	32.00			4013.00	
Change Over Sub	1.00			4014.00	
Perforations	3.00			4017.00	
Bullnose	3.00			4020.00	51.00 Bottom Packers & Anchor

**Total Tool Length: 78.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

**31-24s-13w Stafford,KS**  
**Violet #1**  
Job Ticket: 44047      DST#: 4  
Test Start: 2011.12.03 @ 21:13:31

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 49.00 sec/qt	Cushion Volume: bbl		
Water Loss: 13.17 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 9000.00 ppm			
Filter Cake: 0.20 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
30.00	SGCM 2%G 98%M	0.421

Total Length: 30.00 ft      Total Volume: 0.421 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

Serial #: 6798

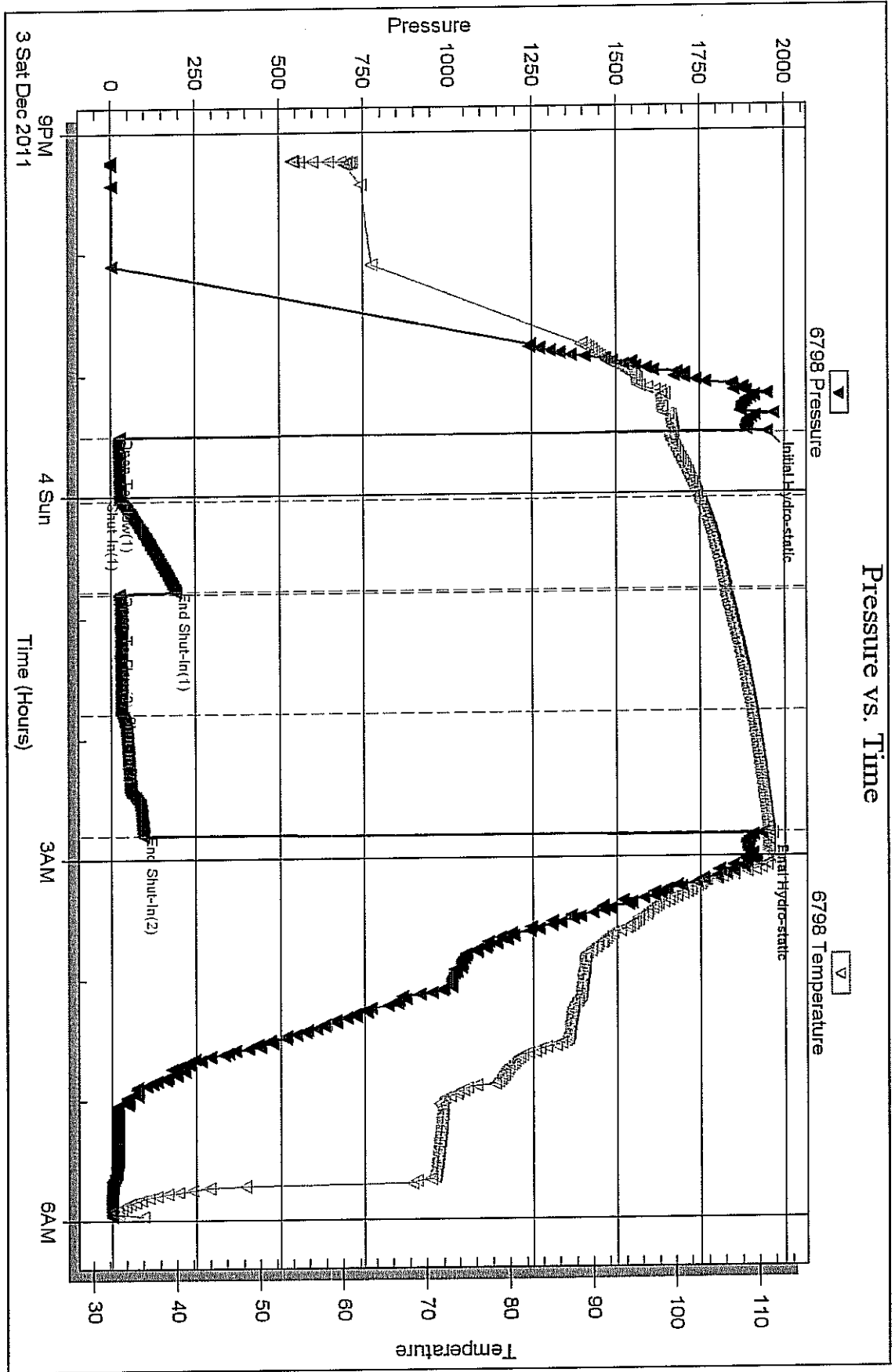
Inside

Gra Bx LLC

Violet #1

DST Test Number: 4

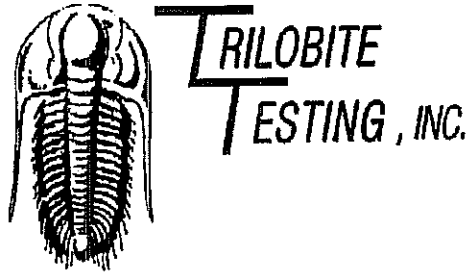
### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 44047

Printed: 2011.12.14 @ 14:19:08



## DRILL STEM TEST REPORT

Prepared For: **Gra Ex LLC**

PO Box 32  
Kingman, KS 67068

ATTN: Jeff Burk

**Violet #1**

**31-24s-13w Stafford,KS**

Start Date: 2011.12.05 @ 06:50:33

End Date: 2011.12.05 @ 16:44:03

Job Ticket #: 44048                      DST #: 5

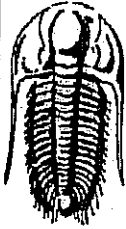
Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

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Gra Ex LLC    31-24s-13w Stafford,KS    Violet #1    DST # 5    Arduckie    2011.12.05



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Gra Ex LLC  
 PO Box 32  
 Kingman, KS 67068  
 ATTN: Jeff Burk

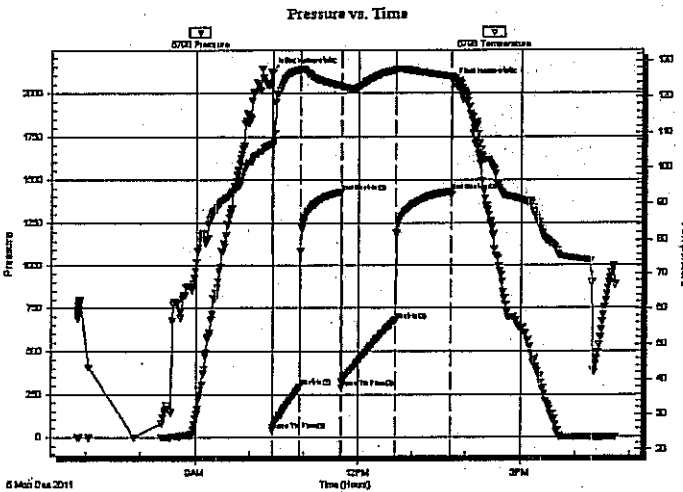
**31-24s-13w Stafford, KS**  
**Violet #1**  
 Job Ticket: 44048      **DST#: 5**  
 Test Start: 2011.12.05 @ 06:50:33

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock      ft (KB)  
 Time Tool Opened: 10:24:48  
 Time Test Ended: 16:44:03  
 Interval: **4193.00 ft (KB) To 4265.00 ft (KB) (TVD)**  
 Total Depth: **4265.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 Inches** Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Leal Cason  
 Unit No: 45  
 Reference Elevations: 1953.00 ft (KB)  
 1943.00 ft (CF)  
 KB to GRVCF: 10.00 ft

**Serial #: 6798**      Inside  
 Press@RunDepth: 682.80 psig @ 4194.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2011.12.05      End Date: 2011.12.05      Last Calib.: 2011.12.05  
 Start Time: 06:50:34      End Time: 16:44:03      Time On Btm: 2011.12.05 @ 10:23:03  
 Time Off Btm: 2011.12.05 @ 13:44:18

**TEST COMMENT:** IF: Strong Blow, BOB in 8 minutes  
 IS: No Blow back  
 FF: Strong Blow, BOB in 8 minutes  
 FS: No Blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2123.43	107.03	Initial Hydro-static
2	41.65	106.40	Open To Flow (1)
32	297.04	127.61	Shut-In(1)
78	1429.79	123.10	End Shut-In(1)
79	291.29	122.95	Open To Flow (2)
138	682.80	127.49	Shut-In(2)
200	1433.46	125.77	End Shut-In(2)
202	2065.57	125.61	Final Hydro-static

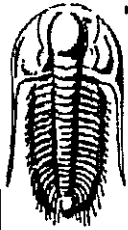
## Recovery

Length (ft)	Description	Volume (bbl)
1364.00	Water	19.13
372.00	GWCM 5%G 35%W 60%M	5.22
30.00	SOSGCM 1%O 2%G 97%M	0.42

\* Recovery from multiple tests

## Gas Rates

Choke (Inches)	Pressure (psig)	Gas Rate (Mc/d)



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
  
ATTN: Jeff Burk

**31-24s-13w Stafford,KS**  
  
**Violet #1**  
Job Ticket: 44048      DST#: 5  
Test Start: 2011.12.05 @ 06:50:33

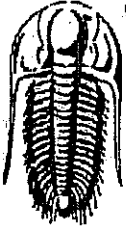
**Tool Information**

Drill Pipe:	Length: 4190.00 ft	Diameter: 3.80 inches	Volume: 58.77 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
		<u>Total Volume:</u>	<u>58.77 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 63000.00 lb
Depth to Top Packer:	4193.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	72.00 ft			
Tool Length:	99.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Shale Packer On Bottom

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4171.00	
Hydraulic tool	5.00			4176.00	
Jars	5.00			4181.00	
Safety Joint	2.00			4183.00	
Packer	5.00			4188.00	27.00      Bottom Of Top Packer
Packer	5.00			4193.00	
Stubb	1.00			4194.00	
Recorder	0.00	6798	Inside	4194.00	
Recorder	0.00	8367	Outside	4194.00	
Perforations	5.00			4199.00	
Change Over Sub	1.00			4200.00	
Drill Pipe	61.00			4261.00	
Change Over Sub	1.00			4262.00	
Bulinose	3.00			4265.00	72.00      Bottom Packers & Anchor

**Total Tool Length: 99.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Gra Ex LLC  
PO Box 32  
Kingman, KS 67068  
ATTN: Jeff Burk

31-24s-13w Stafford, KS  
**Violet #1**  
Job Ticket: 44048      DST#: 5  
Test Start: 2011.12.05 @ 06:50:33

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	45000 ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 12.77 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 10000.00 ppm			
Filter Cake: 0.20 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
1364.00	Water	19.133
372.00	GWCM 5%G 35%W 60%M	5.218
30.00	SOSCOM 1%O 2%G 97%M	0.421

Total Length: 1766.00 ft	Total Volume: 24.772 bbl	
Num Fluid Samples: 0	Num Gas Borris: 0	Serial #:
Laboratory Name:	Laboratory Location:	
Recovery Comments: RW was .38 @ 30 degrees		



Serial #: 6798

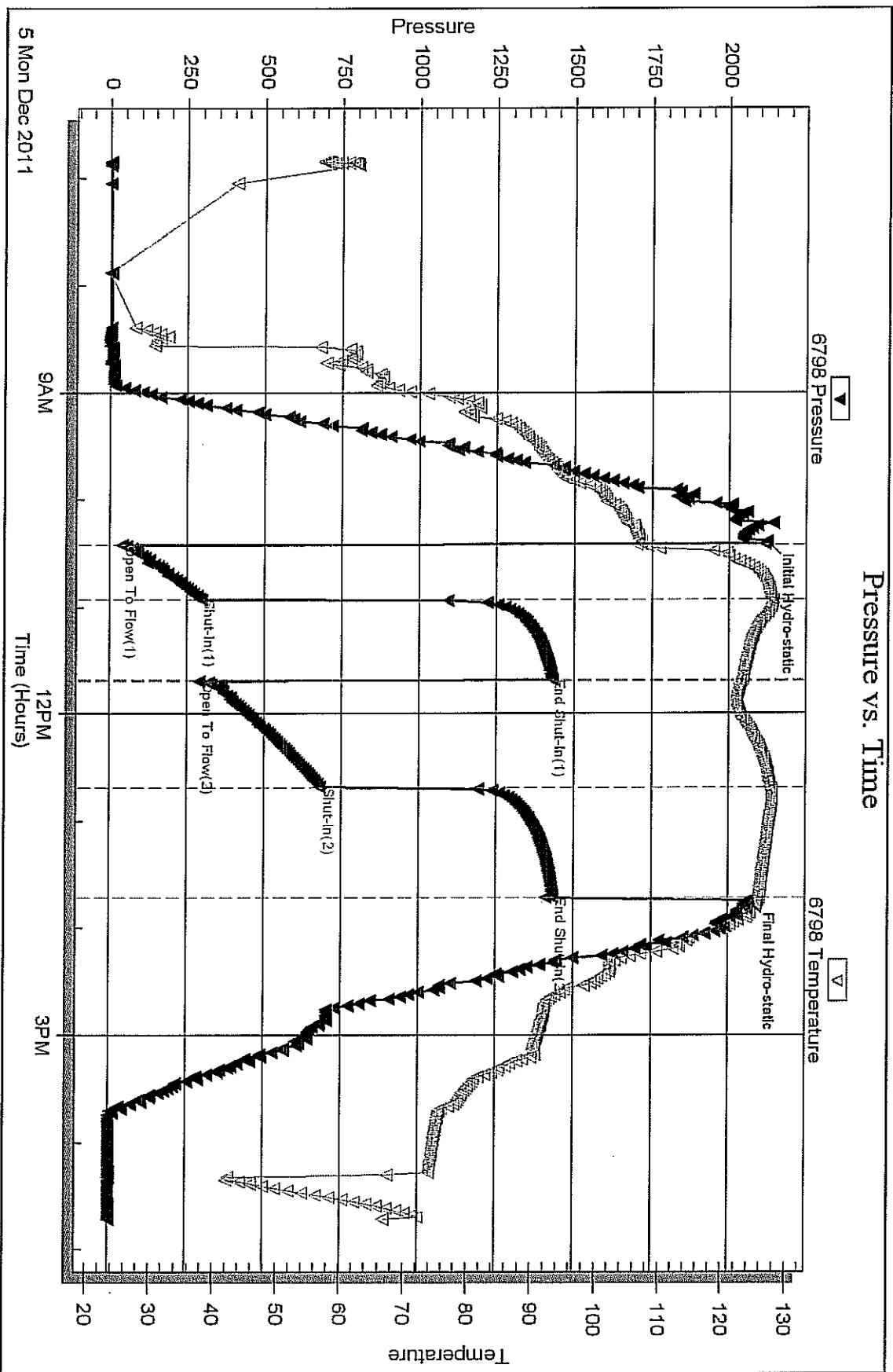
Inside

Gra Bx LLC

Violet #1

DST Test Number: 5

### Pressure vs. Time



Triobble Testing, Inc

Ref. No: 44048

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